ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Digital Data Transmission within	)	MM Docket No. 95-42
the Video Portion of Television	)	
Broadcast Station Transmissions	)	

REPLY COMMENTS OF WAVEPHORE, INC.

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Dated: July 10, 1995

Summary

WavePhore urges the Commission to act promptly to clarify that television licensees have broad discretion to provide ancillary data services using their current NTSC facilities. The record clearly supports such authority. Data broadcasting will permit TV stations to enter the digital era now, adding the capability to transmit high-speed data throughout their service area, giving consumers the ability to access huge amounts of data using inexpensive decoders and their existing computers.

WavePhore supports broadcasters being permitted to provide ancillary data services without any further Commission approval process. WavePhore has demonstrated that its technology will not cause visible degradation to an NTSC picture and that it will not cause interference to other stations. As a general matter and as it has done in other proceedings, the Commission should rely on individual broadcast licensees to make the necessary judgments about picture quality. If the Commission sets any guidelines, they should be only the most general ones and should permit broadcasters to use their discretion to act in a manner that is consistent with those guidelines. (WavePhore does not object if the guidelines include protection of closed captioning and SAP.)

With respect to interference, there already are adequate Commission procedures in place to insure that ancillary data transmissions do not disrupt the operations of other NTSC stations. The Commission's rules for protection of ATV stations also should be adequate to prevent possible interference by an NTSC station transmitting ancillary data.

There is broad support for the Commission to permit broadcasters to provide ancillary data services now, without waiting for any voluntary standards-setting process by the Commission. Standards are unnecessary here, since data transmissions will be part of a "closed"

system intended only for subscribers with their own equipment, typically connected to a computer. In any event, any such proceeding is likely to be lengthy and contentious, which would defeat the whole point of permitting broadcasters to begin offering digital service now in advance of a shift to digital television.

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WavePhore, Inc. ("WavePhore"), by its attorneys, hereby submits its reply comments in the above-referenced proceeding. The record in this proceeding provides ample support for the Commission's proposal to clarify that television broadcasters have broad authority to use their facilities to transmit data on an ancillary basis. The record supports authorizing licensees to select data broadcast technologies without requiring prior Commission approval or a government standards-setting process. Broadcasters can be trusted to maintain the quality of their primary television service and the Commission's rules will be adequate to prevent interference to other stations.

Background

WavePhore is a research and development company that has been developing and promoting high-speed data broadcasting since 1990. WavePhore is presently involved, domestically and internationally, in the development and deployment of the software and hardware needed to permit broadcast facilities to be used immediately to transmit large amounts of data at high speeds to personal and business computers. Since it filed its initial request for declaratory ruling in December 1993, WavePhore has demonstrated through laboratory and field

tests that high-speed data broadcasting can be done without causing degradation to the broadcaster's primary signal or interference to the operation of other stations.

In its comments in this proceeding, WavePhore asked the Commission to enunciate a rule, consistent with its past practice in this area, that permits broadcasters to go forward at their discretion with any data broadcast technology, whether that of WavePhore or another company, that does not cause signal degradation or interference to other stations. WavePhore agreed with the Commission's statement in the NPRM that government standards are not necessary here if data broadcasting is to be provided to specific subscribers rather than to the general public. On this issue, WavePhore urged the Commission not to attempt to set standards, since the principal market for data broadcasting is for subscription service directed to computers equipped with an inexpensive receiver. In addition, WavePhore noted that the standards-setting process would be extremely time-consuming. As to interference concerns, WavePhore suggested that the Commission's existing rules and procedures are adequate to insure that broadcasters do not transmit out-of-band or at excessive power levels.

Thirteen other parties also submitted comments. All of these comments support the concept of data broadcasting. The National Association of Broadcasters ("NAB"), for example, states that it believes that high-speed data broadcasting "is a service whose time has come," anticipating transmissions to television receivers, personal digital assistants, laptop and desktop computers, and pagers. Comments of NAB, at 2-3. En Technologies Corporation ("En"), a new data broadcasting company founded by individuals in the business of direct marketing of personal computers, discusses the ability of data broadcasting to transmit data to computers for distance learning, children's materials, news and financial information, coupons and other

marketing materials, and other computer software. Comments of En, at 5. En anticipates that its own technology will retail at less than $100. Id.

On the issue of standards, A.C. Nielsen ("Nielsen") and Radio Telecom & Technology Inc. ("RTT") agree with WavePhore's position that the Commission should not engage in any standards-setting. Comments of Nielsen, at 16-20; Comments of RTT, at 2-3. Nielsen contends that the operation of the marketplace alone will insure that data broadcasting does not degrade the active video signal. Comments of Nielsen, at 16. Nielsen recommends that if the Commission is nonetheless concerned about broadcast quality, it should prescribe a general rule requiring that data transmissions by broadcasters "not degrade or be visible to viewers of main channel programming in the normal course of viewing," and leave it to individual broadcasters to determine how best to meet their non-degradation requirement. Id. at 17-18. As to interference issues, Nielsen recommends that the Commission continue to require that licensees adhere to established transmission bandwidth and power requirements. Id. at n. 16. Nielsen comments that the developing data broadcast industry is characterized by technological innovation and the development of many alternative technologies directed to different customer bases and proposed uses, and that this innovation and diversity would be stifled by the adoption of a mandatory standard. Id. at 18. Nielsen also submits evidence that a requirement for prior Commission approval of new data broadcasting technologies in its case caused years of delay. Id. at 21-22.

Others that address the standards issue typically agree with the Commission's judgment that standards are appropriate only if the data broadcasts are "open" transmissions intended for the general viewing public rather than "closed" transmission for specific subscribers who own their own equipment. NAB states that it

> has no objection to the Commission allowing those systems that are closed (i.e. where the transmissions are for a proprietary business purpose or are intended only for specific subscribers) to begin operation immediately. In this case, we believe that a Commission adopted standard is less necessary assuming that interference and signal degradation issues have been addressed.

Comments of NAB, at 4 n. 6; see also, Comments of the Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG"), at 3. If the Commission does adopt a standard, NAB recommends that it be voluntary and, as with BTSC MTS or RBDS, the particular technology will be "protected" but broadcasters would be free to use alternative technologies as well. Comments of NAB, at 6-7. According to NAB, this flexibility will permit data broadcasting technology to continue to grow. Id. at 7. The Association for Maximum Service Television, Inc. ("MSTV") also notes that the NDBC process is directed only at the development of a voluntary standard and refrains from recommending that the Commission incorporate the results of the NDBC process into any data broadcasting rules. Comments of MSTV, at 6.

Of those that address the standards issue, only Digideck, Incorporated ("Digideck") and its investor, Chris-Craft Industries, Inc. and United Television, Inc. ("Chris-Craft"), support standards and fail to acknowledge the distinction between standards for "open" service and standards for "closed" service. Chris-Craft argues that before the work of the NDBC is complete, it would be inappropriate for the Commission to even make tentative ad hoc judgments concerning proposed technologies, since such judgments could inadvertently promote a de facto standard based upon inferior technology. Comments of Chris-Craft, at 4. Digideck argues that broadcaster use of an inferior system will give data broadcasting a bad reputation from which it would not recover. Comments of Digideck, at 5.

A few parties express concern regarding the potential of data broadcast technology to cause picture degradation. See Comments of RTT; Zenith Electronics Corporation ("Zenith");

Comsat Corporation ("Comsat"); and CPB/WGBH National Center for Accessible Media ("CPB/WGBH"). CPB/WGBH seeks assurance that data broadcasting will not have an adverse impact on transmissions of closed captioning and Secondary Audio Programming ("SAP"). Comments of CPB/WGBH, at 2. MSTV suggests that additional work needs to be done to establish guidelines on the potential of data broadcast systems to cause interference to ATV systems. Comments of MSTV, at 3.

En, which advocates the use of a data broadcast technology which may be visible to the viewer and which effectively replaces at least a portion of the video image, makes a unique argument regarding degradation. En argues that the Commission's concern with degradation of picture quality applies only to "ancillary" data service and that, therefore, the Commission should not be concerned about its technology because its data transmissions are not "ancillary" to the video programming, but rather are an "integral element" of the programming. Comments of En, at 9. According to En, the signal degradation concerns embodied in FCC rules and policies "have no bearing on En's system." Id. at 11.

Discussion

I. There Is Broad Support for Data Broadcasting

The comments received by the Commission in response to its notice indicate broad support by broadcasters, manufacturers, and data broadcast companies for Commission clarification of broadcasters' authority to provide data broadcasting.[1/] Commenters also note that transmissions of high-speed data will provide an important service to the public, as well as

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1/ See e.g., Comments of Chris-Craft, at 2; Digideck, at 1-2; EIA, at 1; En, at 1; MSTV, at 1; NAB, at 1; NAB/EIA, at 2.

permit broadcasters to compete with telcos, cable and satellite in the provision of data. See Comments of En, at 8, 11; Comments of Digideck, at 2.

II. Broadcasters Should Be Permitted to Use the Data Broadcast Technology of Their Choice

WavePhore advocates that the Commission articulate a simple standard for broadcasters, that their data transmissions must remain "ancillary" to their primary video transmissions and not degrade the picture quality of those transmissions. This approach recognizes the broadcaster's strong incentive to maintain the quality of its principal product and is consistent with the approach that the Commission has taken generally, with respect to other issues of picture quality and to data transmissions using the vertical blanking interval. There is ample evidence that WavePhore's technology can be used without causing visible degradation to picture quality or interference to other stations. Broadcasters can be trusted to seek reliable data before they deploy a data broadcast technology.[2/]

No one submitted any evidence that this approach is unworkable. RTT and Zenith (which concedes that it has not yet taken the time to carefully review the record) raised theoretical concerns about the potential impact of data broadcasting technology, including that of WavePhore, regarding various aspects of a television transmission. With respect to WavePhore's technology specifically, these concerns are entirely unsubstantiated and are completely put to rest

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2/ One approach to dealing with interference concerns is for the Commission to adopt rules similar to those that apply to broadcasters' installation of television stereo transmission equipment. In that case, the rules permit broadcasters to use whatever television stereo technology they choose and such transmission equipment may be installed as long as they conduct proof-of-performance measurements in accordance with Section 73.1590(a). See 47 C.F.R. § 73.682(c)(3). Sections 73.1590(b) and (c) also prescribe the proof-of-performance measurements that are required, including measurement of spurious and harmonic emissions outside of the television band. These measurement records must be kept on file at the television station and made available for FCC inspection.

by the laboratory and field tests that WavePhore has conducted. The issues raised by RTT are the same as those it raised previously, to which WavePhore has already responded.[3/] With respect to Comsat's concerns that data broadcasting may be incompatible with certain compression techniques commonly used in satellite transmissions, WavePhore has always understood this to be the case. The concern raised by Comsat means only that data broadcast networks that use satellite transmissions must take possibility of compression into account in designing their networks. CPB/WGBH seeks assurance from the Commission that the standard for degradation will include protection of closed captioning and SAP. WavePhore has no objection to a grant of this request. Closed captioning and SAP are important to many viewers and WavePhore has demonstrated that its technology does not interfere with either.[4/]

En's technology raises the novel issue of whether a broadcaster should be permitted to intentionally degrade its primary television signal in order to transmit data that is associated with the television programming. WavePhore generally believes that the Commission should permit broadcasters to engage in this form of data broadcasting as long as the data broadcasts remain ancillary to the primary television program, and that the use of such technologies would not be abused by broadcasters, in light of broadcasters' continuing market-driven incentive to maintain the integrity of their television signal. Broadcasters are likely to use En's technology only for a

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3/ See In the Matter of Request by WavePhore, Inc. for a Clarification of the Television Rules to Allow Digital Data Transmission within the Video Portion of Television Station Transmissions, Public Notice DA 94-67, Comments of RTT, dated March 14, 1994, and Reply Comments of WavePhore, dated March 28, 1994.

4/ See Engineering Report On Behalf of WavePhore, Inc., by Cohen, Dippel and Everist, P.C., Consulting Engineers, dated November 1993, at 3 (attachment of Letter to Roy J. Stewart, Chief, Mass Media Bureau, FCC, from David E. Deeds, Chairman, WavePhore, Inc., dated December 9, 1993); see also, Comments of NAB/EIA, Appendix A, Results of Tests on WavePhore and Digideck Systems, dated March 2, 1995, at 82 (referencing that the WavePhore system did not interfere with closed captioning).

short time and without obscuring the entire picture. Nonetheless, En's technology clearly does cause visible degradation to a broadcaster's television picture, whereas other technologies such as that of WavePhore are transparent to the television viewer. WavePhore expects that this difference between the two types of data broadcast technologies (i.e., those that are visible to viewers and those that are invisible to viewers) may require additional time for the Commission to consider. To the extent that this is the case, WavePhore urges the Commission to consider such issues in a separate proceeding to avoid further delaying action to authorize broadcasters to use data broadcast technologies that broadcasters fairly determine to be invisible to their viewers.[5/]

MSTV expresses concern with the potential for data broadcasting to cause interference to ATV stations. (It is noteworthy that MSTV does not express a similar concern regarding the potential for interference to NTSC stations.) WavePhore recognizes that the interference standards for protecting ATV stations are not yet final. WavePhore anticipates that, at such time as they are finalized, the rules will provide criteria for insuring that ATV stations are protected against interference from NTSC stations that will be broad enough to encompass NTSC stations that deploy data broadcast technologies. In the meantime, to the extent necessary, the Commission may clarify that broadcasters that deploy data broadcast technologies do so with the understanding that they will be subject to such future requirements. WavePhore is confident

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5/ WavePhore has a similar concern with RTT's position that the scope of this proceeding is broad enough to encompass its "two-way TV" technology which operates in a "reverse VBI" mode, allowing viewers to transmit to a broadcaster. RTT Comments, at 2. Without taking a position on the merits of RTT's proposal, it clearly raises unique interference issues. WavePhore therefore urges that, in order to act expeditiously, the Commission limit this proceeding to the consideration of data broadcast technologies that the licensee operates from its transmitter and exclude more radical proposals such as that of RTT.

based on discussions with Commission staff and the fact that its technology uses the video baseband, that it will comply with any ATV protection requirements. MSTV itself expresses confidence that the interference issues can be resolved when it urges that pending the inauguration of ATV services, NTSC data broadcasting "should be implemented expeditiously." Comments of MSTV, at 7.

Digideck and Chris-Craft, by their unbounded support for standards, appear to be the only parties that do not support broad authorizations for deployment of data broadcasting, at least for closed transmissions. Neither of their comments, however, substantiate why the Commission needs to be so distrustful of individual broadcasters' ability to choose an appropriate technology or technologies. The only argument that they make is that broadcasters may choose an inferior technology, which could harm the reputation of the data broadcast industry generally and prevent its rapid development. WavePhore submits, however, that (with all due respect to the Commission) the market and individual broadcasters should be better able than the Commission to decide among the available technologies.

Digideck and Chris-Craft appear to be hoping that the NDBC lab tests, conducted in November and December 1994, will result in Digideck's selection by the NDBC as the sole standard for a data broadcasting technology. WavePhore's understanding of those tests, however, is that they demonstrated relatively little difference between the two technologies on the narrow issues being tested. The only possible exception to this involves the technologies' "robustness" under certain relatively unusual conditions. In any event, WavePhore is making improvements to its technology's robustness and the NDBC has agreed to retest these improvements. In addition, the NDBC has not yet conducted field tests or considered the other issues, including cost of implementation and readiness to market that WavePhore has urged the

committee to consider in selecting one or more technologies as standards. See WavePhore Response to Report of Evaluation Working Group National Data Broadcasting Committee, dated March 17, 1995 (included as part of the joint comments of NAB-EIA).[6/]

The biggest problem with the recommendation of Digideck and Chris-Craft is that it ignores the horrible delay that would be entailed in waiting for the NDBC process to conclude and then beginning a Commission rulemaking to consider the adoption of a standard or standards.[7/] Such rulemakings are typically contentious. The same can be expected here given the dynamic nature of data broadcasting and the many different technologies that are likely to be proposed if there is to be a government standards-setting process. It is reasonable to expect that the Commission would not issue such a standard for two years after beginning a proceeding, or not before mid-1998. Even then, parties are likely to continue to litigate the issues, through reconsideration requests and appeals.

Digideck's interest in a Commission standard may stem in part from its expectation that the market for data broadcasting is driven by service to television receivers. WavePhore strongly disagrees with this perception. The high-speed transmission of hundreds of thousands of bits of

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6/ Digideck and Chris-Craft also seem to misunderstand the purpose of the NDBC. As recognized in its charter, the NDBC is involved only in the development of "voluntary" standards. See also, Comments of MSTV, at 6. NAB discusses a similar limited role for any standard-setting that the Commission might undertake, one which would continue to permit broadcasters to use other data broadcast technologies. Comments of NAB, at 5.

7/ NAB and EIA in their joint filing on behalf of the NDBC concede that the NDBC process will not be complete before the second quarter of 1996, or almost a full year from now. Comments of NAB/EIA, at 4. MSTV, which no longer advocates that the Commission wait for the NDBC process to conclude before acting in this proceeding, characterizes the work of the NDBC only as "ongoing." A recent article in Broadcasting & Cable characterizes Digideck as close to running out of funds, which could cause further postponements. Chris McConnel, Data Broadcasting Standard Hits Snag, Broadcasting & Cable, June 29, 1995, at 45. It is thus clear that the NDBC process, despite the best efforts of all parties involved, is not likely to conclude in the near future.

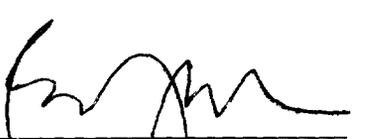
information per second requires the use of a computer to store and process the data that is being transmitted. A television receiver connected to a $5-15 decoder, as envisioned by Digideck, will be essentially useless to the consumer. Until television receivers have the capacity for storing and processing megabits of data, which is not expected to occur for many years, data broadcasting will remain a computer-driven service.

Conclusion

Therefore, based on the foregoing, WavePhore urges the Commission to act expeditiously to adopt a flexible regulatory scheme that will allow broadcasters to engage in high-speed data broadcasting.

Respectfully submitted,

WAVEPHORE, INC.

By: 

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July 10, 1995

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CERTIFICATE OF SERVICE

I, Ana Julissa Ayala, a secretary in the law firm of Fisher Wayland Cooper Leader & Zaragoza L.L.P. do hereby certify that on this 10th of July, 1995 a copy of the foregoing "**Reply Comments of Wavephore, Inc.**" was sent by U.S. first class mail, postage prepaid to the following:

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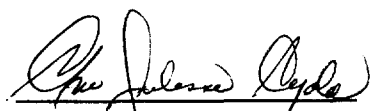

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